



## **NASA and the Department of Energy Contract ODN, Inc. for Mars Science Laboratory Launch Support**

**Saturday, November 26 at 10:02 AM, a NASA Atlas/Centaur rocket propelled the most advanced interplanetary spacecraft ever built towards a landing on Mars next summer.**

Almost four years ago, we at ODN were contacted by NASA and Canberra Corporation to develop a satellite system for a new real time safety network to be tested at Cape Canaveral during the launch of the Mars Science Laboratory (MSL).

The new Mars probe uses a Radioisotope Thermoelectric Generator (RTG) to power the rover because it is quite large (size of a compact automobile) and solar cell power is not sufficient to provide the necessary on-board electrical requirements. An RTG can run for years uninterrupted. RTG's powered the Voyager probes, the first of which was launched in 1977 and that is now in deep space.

As Plutonium Pu-238 isotope naturally decays it produces heat that is transferred to a small electrical signal, although it has been rendered safe from explosion and is literally bullet proof. Because the RTG contains a large quantity of Pu-238, presidential approval is required before launch. The Department of Energy and NASA have detailed radiological contingency plans in place in the event of an accident during the launch.

The new advanced safety network uses a special environmental continuous air monitor robot called an E-CAM. The E-CAM was designed to allow the detection of tiny amounts of radioactive materials in the air that could cause harm to people breathing it. The robot actually breathes the air and samples any particles small enough to be retained by the lungs.

The obvious long term use of this technology is to warn the public during events like we saw in Japan last summer, when their nuclear reactors were damaged by a tsunami. Ringing the Cape with these new E-CAM robots would ensure that should the rocket have to be destroyed; any release of radiological materials from the spacecraft would quickly be detected before the public could be harmed.

ODN, Inc., with the support of ViaSat Inc. and its WildBlue satellite broadband service, designed a hardened Ka-band VSAT system that couples to the E-CAM sensors, enabling real time monitoring of the devices. Each of the 34 E-CAM units has a matched 98cm Ka-band SurfBeam 2 VSAT attached to it. These VSAT's feed continuous data into the RADCC facility at Kennedy Space Center as well as the Lawrence Livermore National Laboratory NARAC facility in California.

The E-CAMS were a "go" item on the launch countdown checklist, so we at ODN were holding our breath! During the launch, all E-CAMS were operational and radiological data flowed to and from the E-CAM units as designed. These E-CAM devices will now be used during any event requiring an early warning system for radiological release.

Greg Heifner, founder of Columbia, Missouri based ODN said, "In my entire 30 year career in satellite, I have never been as honored to work for an agency as I was when I got the chance to work with NASA, the DOE, and Canberra. As true followers of anything space-related, it was our chance to walk in the footsteps of our heroes. We at ODN appreciate the support from the WildBlue and ViaSat teams. They took this project seriously and the results showed. I – along with the world – will watch with fascination as this remarkable spacecraft explores Mars and looks for life next year."

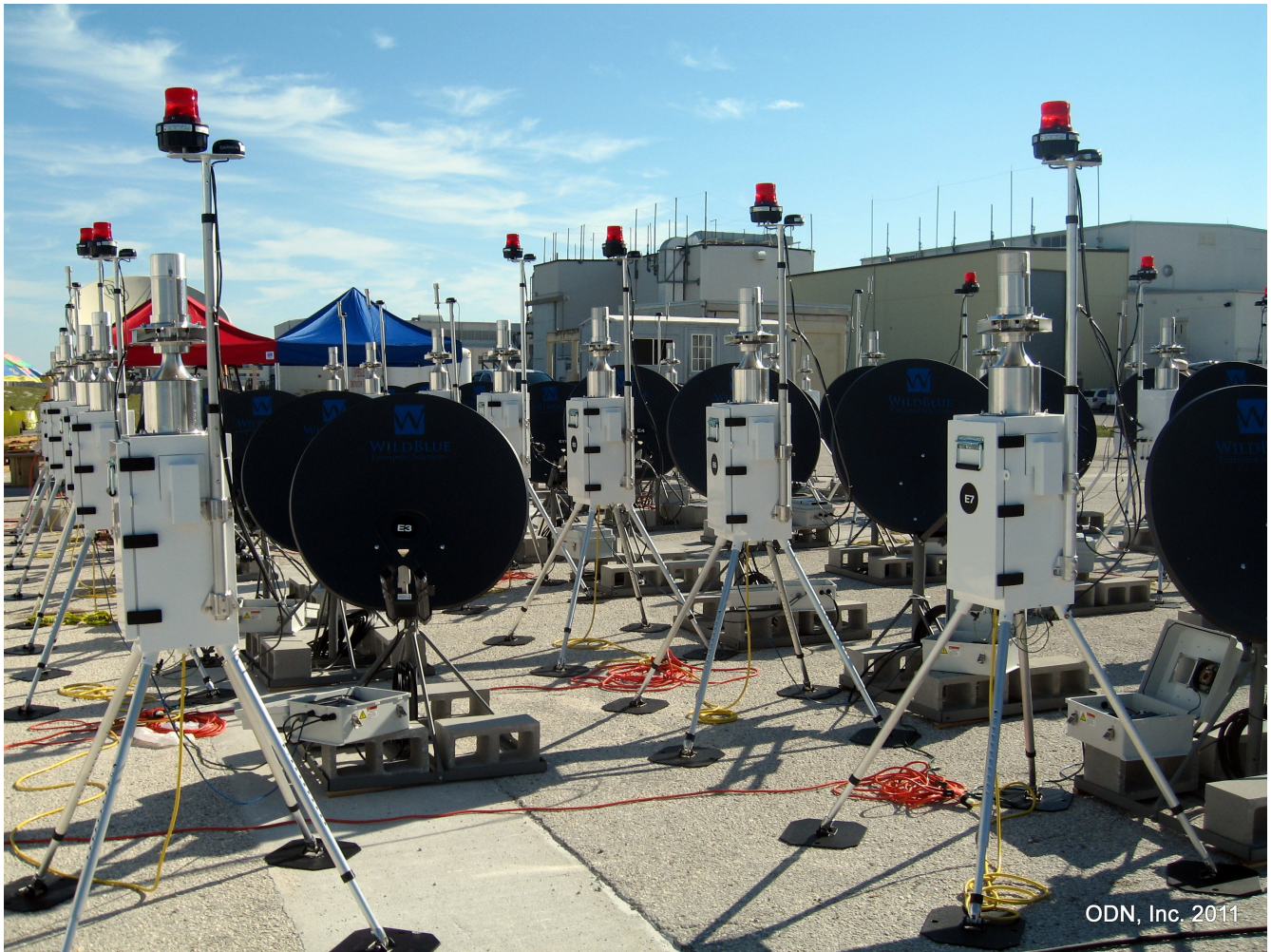
ODN, Inc., located in Columbia Missouri, is one of the leading firms in the nation using satellite technology for critical applications such as emergency management and restoration of communication assets during disasters. More information is online at [www.orbitaldata.net](http://www.orbitaldata.net).

WildBlue is the satellite services arm of ViaSat Inc. With the launch of ViaSat-1, the world's highest capacity satellite, the stage is set for accelerated growth, increased performance, and expansion of the WildBlue service. The advanced technology of the WildBlue network has elevated the service quality of satellite broadband to the point that satellite can now be a better alternative for broadband Internet than DSL, and 3G / 4G wireless offerings for fixed home use.



Greg Heifner of ODN standing in front of the 34 E-CAM detectors and WildBlue broadband VSAT pairs at Cape Canaveral during a full scale test of the system prior to launch.





The E-CAM robots with their associated VSAT's during pre-flight testing.





E-CAM deployed on site at Fire Station in preparation for the launch.

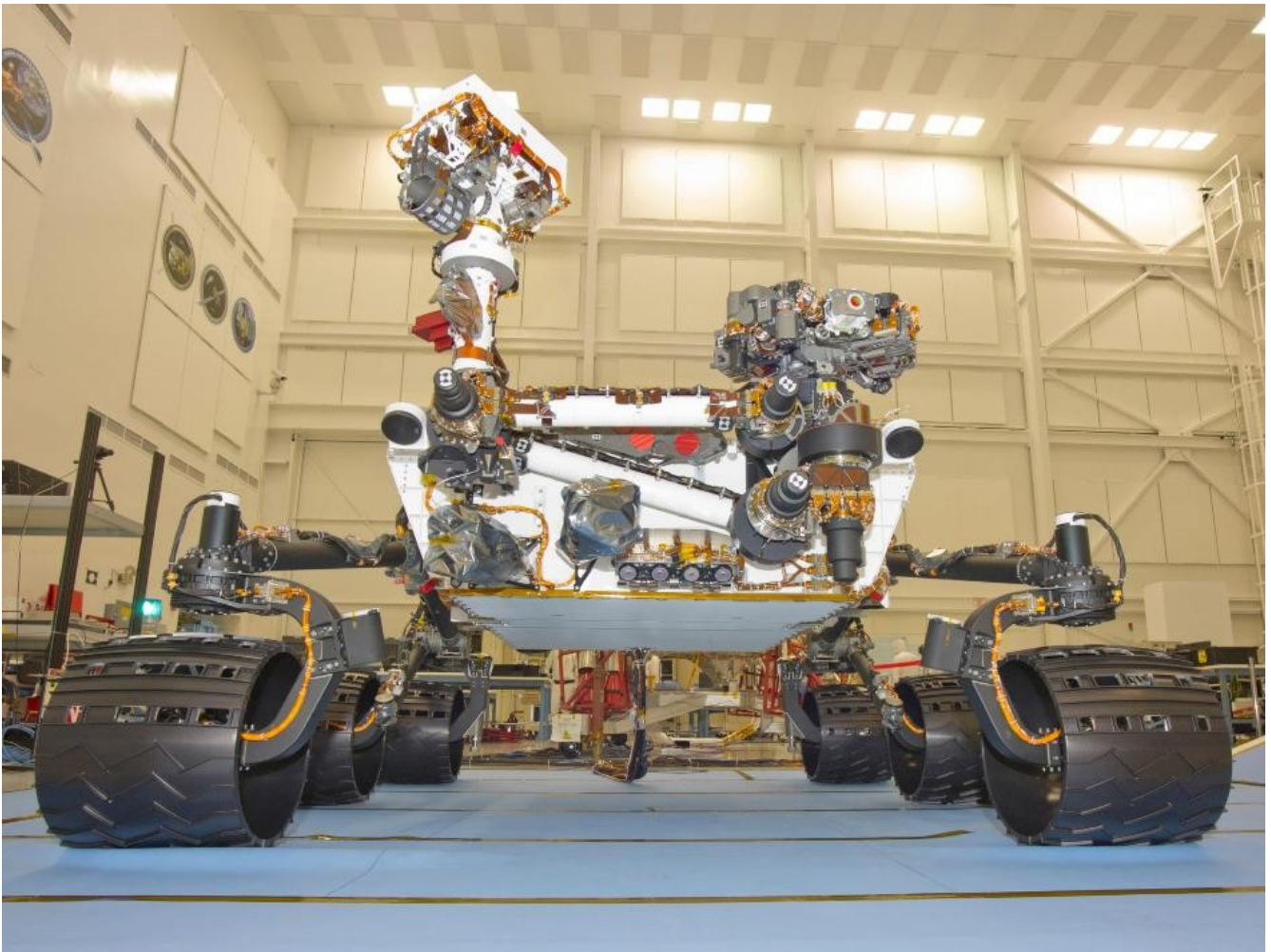


The launch. NASA file photo.





Computer model of MSL, note RTG is seen on back end of spacecraft.



Another actual view of MSL.

Additional details: <http://news.discovery.com/space/mars-rover-launch-radiation-precautions-111124.html>